

REMARKS

In the Office Action Summary the Examiner noted that claims 1-23 are pending in the application, and that claims 5 and 8-23 are withdrawn from consideration. The Examiner rejected claims 1-4, 6 and 7. By this Amendment, claim 1 has been amended, and new claims 24-29 have been added. No new matter has been presented. The Examiner's rejections are traversed below, and reconsideration of all rejected and objected to claims is respectfully requested.

Objection to the Drawings

On pages 2-3 of the Office Action the Examiner objected to Figures 1A-1D, stating that the addition of the designation "Prior Art" is required for each of these drawings. However, this objection is incorrect. FIGs. 1A-1D are not believed to constitute "prior art" as that term is defined by either 35 U.S.C. §102 or 35 U.S.C. §103. Rather, these drawings are simply abstract representations of the art prepared by the Applicants in an effort to illustrate the Applicants' discovery of problems which plague the art; this discovery is itself, together with the Applicants' abstraction of the art represented by FIGs. 1A-1D, part of Applicants' invention. The figures are therefore, the Applicants' work products and the Applicants' effort to describe the invention in terms of both the problems which have plagued the art and which Applicants have addressed with the inventions defined by the claims. In view of these explanations, the Applicants respectfully request the withdrawal of this rejection.

Claim Rejections Under 35 USC §102

On pages 3-4 of the Office Action the Examiner rejected claims 1-4 and 6 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,755,909, issued to Jung (hereinafter referred to as "Jung"). The Applicants respectfully traverse these rejections by the Examiner.

Claim 1 of the present application, as amended, recites:

A polycrystalline silicon thin film to be used in display devices, the thin film comprising adjacent primary grain boundaries that are not parallel to each other and do not contact each other, wherein an area surrounded by the primary grain boundaries is larger than $1 \mu\text{m}^2$.

Therefore, in the polycrystalline silicon thin film recited in claim 1, the primary grain boundaries "are not parallel to each other and do not contact each other." This allows the

fabrication of a polycrystalline silicon thin film having various shaped microstructures.

This is in direct contrast to the polycrystalline silicon disclosed in Jung. Jung discloses a method of sequential lateral solidification using a mask having four different transmission areas comprising horizontal or vertical stripes, wherein two areas of vertical stripes are offset relative to one another, and two areas of horizontal stripes are offset relative to one another (Figure 4). This mask is shifted so that each area of the mask is moved to the next region of the silicon film during each lateral shift (Column 6, Lines 16-29). The resulting silicon film is illustrated in Figure 5D, in which primary grain boundaries that are not parallel to each other contact one another in the intersection of the grain boundaries. Two of these intersections, and therefore contact points, are shown in the areas identified as "G" in Figure 5D. Therefore, the primary grain boundaries of Jung that are not parallel to each other do contact each other.

Therefore, Jung does not disclose a polycrystalline silicon thin film in which the primary grain boundaries "are not parallel to each other and do not contact each other." Accordingly, Jung does not disclose every element of the Applicant's claim 1. In order for a reference to anticipate a claim, the reference must teach each and every element of the claim (MPEP §2131). Therefore, since Jung does not disclose the features recited in independent claim 1, as stated above, it is respectfully submitted that claim 1 patentably distinguishes over Jung, and withdrawal of the §102(e) rejection is earnestly and respectfully solicited.

Claims 2-4 and 6 depend from claim 1 and include all of the features of that claim plus additional features which are not taught or suggested by Jung. Therefore, it is respectfully submitted that claims 2-4 and 6 also patentably distinguish over Jung.

Claim Rejections Under 35 USC §103

On pages 4-5 of the Office Action the Examiner rejected claim 7 under 35 U.S.C. § 102(e) as being anticipated by Jung or, in the alternative, under 35 U.S.C. §103(a) as being obvious over U.S. Patent Publication No. 2003/0197666, issued to Akimoto et al. (hereinafter referred to as "Akimoto") in view of Jung.

As discussed in the preceding section of this Amendment, claim 1 patentably distinguishes over Jung. Further, claim 7 depends from claim 1 and includes all of the features of that claim plus additional features not recited in claim 1. Therefore, it is respectfully submitted that claim 7 also patentably distinguishes over Jung. Also, Akimoto merely discloses an electroluminescent device comprising a thin film transistor with a polycrystalline silicon thin film

active layer, and does not cure the deficiencies of claim 1 as discussed in the preceding section of this Amendment. Therefore, claim 7 also patentably distinguishes over the combination of Jung and Akimoto. Thus, for at least these reasons, it is respectfully submitted that claim 7 patentably distinguishes over the cited references, and withdrawal of the §102(e) and §103(a) rejections is earnestly and respectfully solicited.

New Claims

New claim 24 recites:

A polycrystalline silicon thin film to be used in display devices, the thin film comprising primary grain boundaries that are not parallel to each other and do not contact each other.

Neither Jung nor Akimoto disclose a polycrystalline thin film having adjacent primary grain boundaries that are not parallel to each other and do not contact each other. Therefore, it is respectfully submitted that claim 24 patentably distinguishes over the cited references.

New claims 25-29 depend from claim 24 and include all of the features of that claim plus additional features which are not taught or suggested by the cited references. Therefore, it is respectfully submitted that claims 25-29 also patentably distinguish over the cited references.

Summary

In accordance with the foregoing, claim 1 has been amended, and new claims 24-29 have been added. No new matter has been presented. Therefore, claims 1-4, 6-7, and 24-29 are pending and under consideration.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

STEIN, MCEWEN & BUI, LLP

Date: 04/19/05

By: Thomas L. Jones
Thomas L. Jones
Registration No. 53,908

1400 Eye St., NW
Suite 300
Washington, D.C. 20005
Telephone: (202) 216-9505
Facsimile: (202) 216-9510